

## 1.0 INTRODUCTION

This Statement of Purpose and Need report is being completed as part of a Corridor Planning Study and Environmental Assessment for US 231/SR 46/SR 67 in the Town of Spencer, Owen County, Indiana.

The Statement of Purpose and Need report presents a detailed review of roadway characteristics including roadway geometrics, access points, existing/future capacity, level-of-service and an evaluation of recent crash data. The document also presents a summary of the environmental, social, and economic features that are critical to the preparation of NEPA documents under the guidelines of the Federal Highway Administration.

## 2.0 SUMMARY OF PURPOSE AND NEED

The Corridor Planning Study and Environmental Assessment was initiated by the Indiana Department of Transportation (INDOT). The purpose of the US 231/SR 46/SR 67 Corridor study can be summarized as:

- *Reduce Congestion*  
While peak hour levels-of-service are predicted to remain at acceptable levels for the next two decades, the daily traffic volume is near the threshold for a three-lane facility. Peak hour truck percentages of up to 12% contribute to vehicle delays. Inadequate curb radii also make it difficult for trucks to turn into local businesses or streets, further increasing delays.
- *Improve Roadway Efficiency*  
Several factors affect the efficiency and the perceived efficiency of the corridor, such as numerous closely spaced access points and traffic queues spanning more than one block, resulting in numerous driveways and side streets being frequently blocked. No driveway locations were observed to cause queuing that interfered with intersection operations.
- *Improve Roadway Safety*  
Over 200 crashes have occurred in the study area during the years 2003-2005. Only one individual study area intersection exceeded the statewide averages for crash frequency and crash severity. However, the overlap section of US 231/SR 46/SR 67 did exceed statewide averages for crashes frequency and severity when analyzed as one roadway segment, instead of a series of intersections.
- *Meet Current Geometric Criteria*  
The existing cross-section of the overlap section of US 231/SR 46/SR 67 in Spencer does not meet INDOT's Design Manual criteria for two-way left turn lane width, shoulder width, or curb offset.

## 3.0 PROJECT HISTORY

### 3.1 Background

This Statement of Purpose and Need Report is being completed as part of a Corridor Planning Study and Environmental Assessment (EA) for US



231/SR 46/SR 67 in the Town of Spencer in Owen County, Indiana. The primary focus of this study is the roadway between the US 231/SR 67 and SR 46 east intersection and the west intersection of US 231/SR 67 and SR 46. This overlap section of roadway passes directly through the Town of Spencer, and is approximately 0.85 miles in length. The general study area includes Washington Township in east-central Owen County. A map illustrating the study area has been provided in **Figure 1**. An aerial map that depicts the town is shown in **Figure 2**.

Owen County is located in west-central Indiana approximately 20 miles northwest of the City of Bloomington, Indiana. Washington Township is located in east-central Owen County and contains the Town of Spencer. The Town of Spencer is Owen County's largest community and county seat, and is located along the banks of the White River. Since the designation of Spencer as the county seat, the town has been the political and economic center of Owen County.

According to the US Census Bureau, Owen County had a population of 21,786 in the year 2000 and experienced 26% percent growth in population between 1990 and 2000, a growth rate of 2.6% per year. This made Owen County the 4<sup>th</sup> fastest growing county in the state over that time period. Overall Owen County's population grew by 4,505 residents from 1990 to 2000. Indiana's state overall population grew 9.7 percent from 1990 to 2000. For the year 2005 the estimated population was 22,823, with a population change of 4.8% over five years (less than 1% per year).

The largest population centers in 2000 within Owen County were Spencer with a population of 2,508, and Gosport with a population of 715. The 2003 median household income in Owen County was \$37,296 compared to \$43,323 statewide. The County's per capita income in 1999 of \$16,884 was lower than the state average of \$20,397. The County's unemployment rate was 5.1 percent in 2004, which is slightly below the state average of 5.2 percent.

US 231/SR 67 is a primary north-south route that is a STRAHNET Connector that provides access from Crane Naval Weapons Center south in Martin County and north to I-70 in Putnam County. US 231/SR 67 is designated as a Statewide Mobility Corridor north of Spencer. SR 46 is an east-west route, providing access from Terre Haute in Vigo County east to Bloomington in Monroe County and continuing east to I-65 in Bartholomew County. SR 46 is designated as a Statewide Mobility Corridor east of Spencer, and designated as a Regional Mobility Corridor west of Spencer.

### **3.2 Traffic Investigation**

In August 2001 the Indiana State Police Post in Bloomington submitted a request to the Indiana Department of Transportation (INDOT) Seymour District Traffic Department to conduct an investigation of traffic congestion along US 231/SR 46/SR 67 through the Town of Spencer. The study reviewed accident data, geometrics, growth patterns, and traffic volumes. The section that was studied began at the West Junction of US 231/SR 46/SR 67 and moved east to the existing bridge on SR 46 over the White River just east of Spencer.

The 0.85-mile portion of roadway extends through downtown Spencer in Owen County. The recommendations of the investigation indicated the development of a one-way pair was necessary

to eliminate congestion. It was proposed that Franklin Street, that runs parallel to US 231/SR 46/SR 67 through town to the south, become the eastbound lanes of US 231/SR 46/SR 67 northbound. To utilize Franklin Street as part of the one-way pair, the existing Indiana Southern Railroad line would require location out of Spencer to the south side of the White River. Additionally, the western terminus of Franklin Street would be relocated to form the fourth leg of the western junction of US 231/SR 67 and SR 46. The one-way pair concept and railroad relocation is still under consideration as a means of improving traffic flow through Spencer.

Following the completion of the 2001 INDOT traffic investigation, several improvements have been made to the study area corridor. Morgan Street (US 231/SR 46/SR 67) was restriped from a two-lane facility to a three-lane roadway. The additional lane is now used as an exclusive left turn lane in many locations, and as a center two-way left-turn lane in the remaining locations. A westbound right turn lane was constructed at the West Intersection of US 231/SR 67 and SR 46. Additionally, the three signals along Morgan Street were upgraded in 2004 by INDOT. All of the above improvements have contributed to substantially increased capacity on the state route system through Spencer.

## 4.0 SUPPORTING DOCUMENTATION

### 4.1 Roadway Characteristics

The 2025 Long Range Strategic Plan developed by INDOT shows that US 231/SR 67 northeast of Spencer and SR 46 east of Spencer are classified as Statewide Mobility Corridors. The Statewide Mobility Corridors are the highest classification of corridors in Indiana. These corridors have high design speeds, high design standards, and large volumes of both passenger cars and trucks. The portion of US 231/SR 67 through downtown Spencer and southwest of Spencer is listed as a Regional Mobility Corridor, as is SR 46 west of Spencer. US 231/SR 67 throughout the study area and SR 46 east of US 231/SR 67 are designated as part of the National Highway System and are classified as Principal Arterials by INDOT. SR 46 west of US 231/SR 67 is classified as a Minor Arterial by INDOT and is not part of the National Highway System. Because of the grid street system that exists in Spencer, the overlap section of US 231/SR 46/SR 67 is considered to be urban for the purpose of roadway design standards. All of these roadways are significant commuter routes as they connect portions of southwestern Indiana, including Spencer, with Bloomington, Indianapolis and Terre Haute. The most recent available INDOT data shows that the overlap section of US 231/SR 46/SR 67 (Morgan Street) through Spencer serves approximately 20,000 vehicles per day. This large traffic volume on Morgan Street and its designation as a Principal Arterial both underscore the importance of this corridor for regional mobility and the need to ensure efficient and safe traffic flow in the corridor.



### 4.2 Roadway Geometrics

The overlap section of US 231/SR 46/SR 67 (Morgan Street) through Spencer is a 36-foot wide section of pavement, with one 12-foot through travel lane in each direction. The speed limit is posted as 30 miles per hour on Morgan Street between SR 46 West and Fletcher Avenue. Much

of the center lane of Morgan Street is used for numerous dedicated left turn lanes, and is striped as a two-way left turn lane in the remaining locations. Right turn lanes are not present at the cross street intersections along Morgan Street through the business district. Morgan Street is a curbed facility with no usable shoulder width. Recent improvements have been made at the Morgan Street/Fletcher Avenue intersection and the Morgan Street/SR 46 West intersections that have provided improved radii for truck turning movements. However, most of the other Morgan Street intersections have smaller curb radii that are appropriate for the low speed environment, but can cause difficulties for the occasional truck turning movements. Local residents and law enforcement have indicated that water frequently ponds on the roadway and blocks the through lanes during heavier rain events. Based on the roadway standards provided in the INDOT Design Manual, Morgan Street does not currently confirm to current design criteria. The Design Manual lists that an urban, intermediate design should have a minimum of 11-foot travel lanes, 14-foot two-way left turn lane (TWLTL), 2-foot paved shoulders, and 2 feet of curb offset (included in the paved shoulder). In order to meet these minimum standards, Morgan Street would need to have at least 40 feet of curb-to-curb width, 4 feet greater than the existing 36-foot width. Additional width beyond 40 feet would be necessary to obtain desirable standards. The right-of-way is approximately 50 feet wide west of Wolf Street and approximately 60 feet wide east of Wolf Street. Therefore, Morgan Street could likely be widened to provide minimum or desirable roadway standards within the existing right-of-way. However, at numerous locations in the corridor, items such as parking lots and utility poles appear to have encroached into the right-of-way and would have to be removed or relocated to widen Morgan Street. Additionally, sidewalks are present on both sides of Morgan Street east of Beem Street. If Morgan Street were widened and necessitated relocation of sidewalks, some of these sidewalks may not be able to fit within the existing right-of-way. Widening the lanes of Morgan Street to provide current roadway standards would have a minor impact on the level-of-service of the corridor and could potentially reduce certain types of crashes, such as sideswipes.

### 4.3 Access Points

Numerous access points exist along Morgan Street, primarily for commercial/retail uses, but some single-family residential driveways still exist. An inventory of existing access points was performed for Morgan Street between SR 46 West and Fletcher Avenue. Including public streets, a total of 33 curb cuts exist on the north side of Morgan Street, while 40 curb cuts exist on the south side of Morgan Street. Over this 0.83 mile section of Morgan Street, this results in an Access Point Density of 88.0 accesses per mile. Many of these access points have excessively wide driveway openings, are very closely spaced with adjacent driveways or streets, and are often not aligned with the access point across the street. These conditions can lead to safety problems of increased conflict points and vehicles entering and exiting Morgan Street at unexpected places.



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## 4.4 Bridges

No bridges or significant structures are located on the section of US 231/SR 46/SR 67 (Morgan Street). Approximately 1000 feet southwest of SR 46 on US 231/SR 67 is a bridge traversing Meadowbrook Creek. This structure is scheduled for replacement by INDOT within the next few years. More details on this project can be found in the Committed Projects section of this report.

## 4.5 Existing & Projected (2030) Traffic Volumes & LOS

### Evaluation of 2006 Counts

**ms consultants** conducted turning movement traffic counts on June 21-22, 2006 at the three signalized intersections along Morgan Street (US 231/SR 46/SR 67) in the study area:

- West Intersection (Morgan St. & SR 46 West)
- Main Street & Morgan Street
- East Intersection (Morgan St. & Fletcher Ave.)

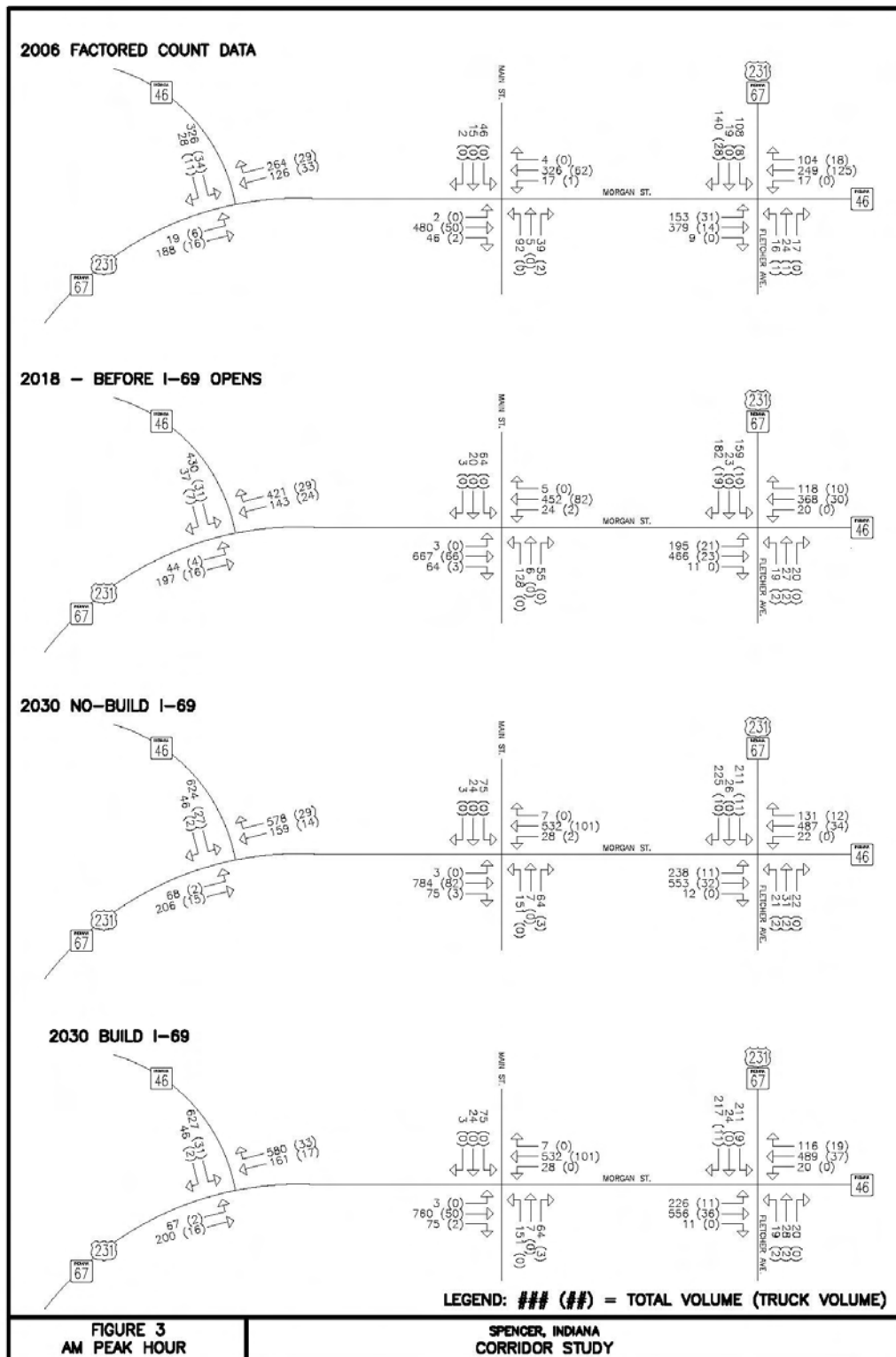
Count data was collected at these intersections from 7:00-9:00 AM and 3:00-6:00pm. The peak hours were identified to be 7:15-8:15 AM and 4:00-5:00 PM. Heavy vehicles (trucks, buses, etc.) were classified separately in the counts for use in developing truck percentages in capacity analyses.

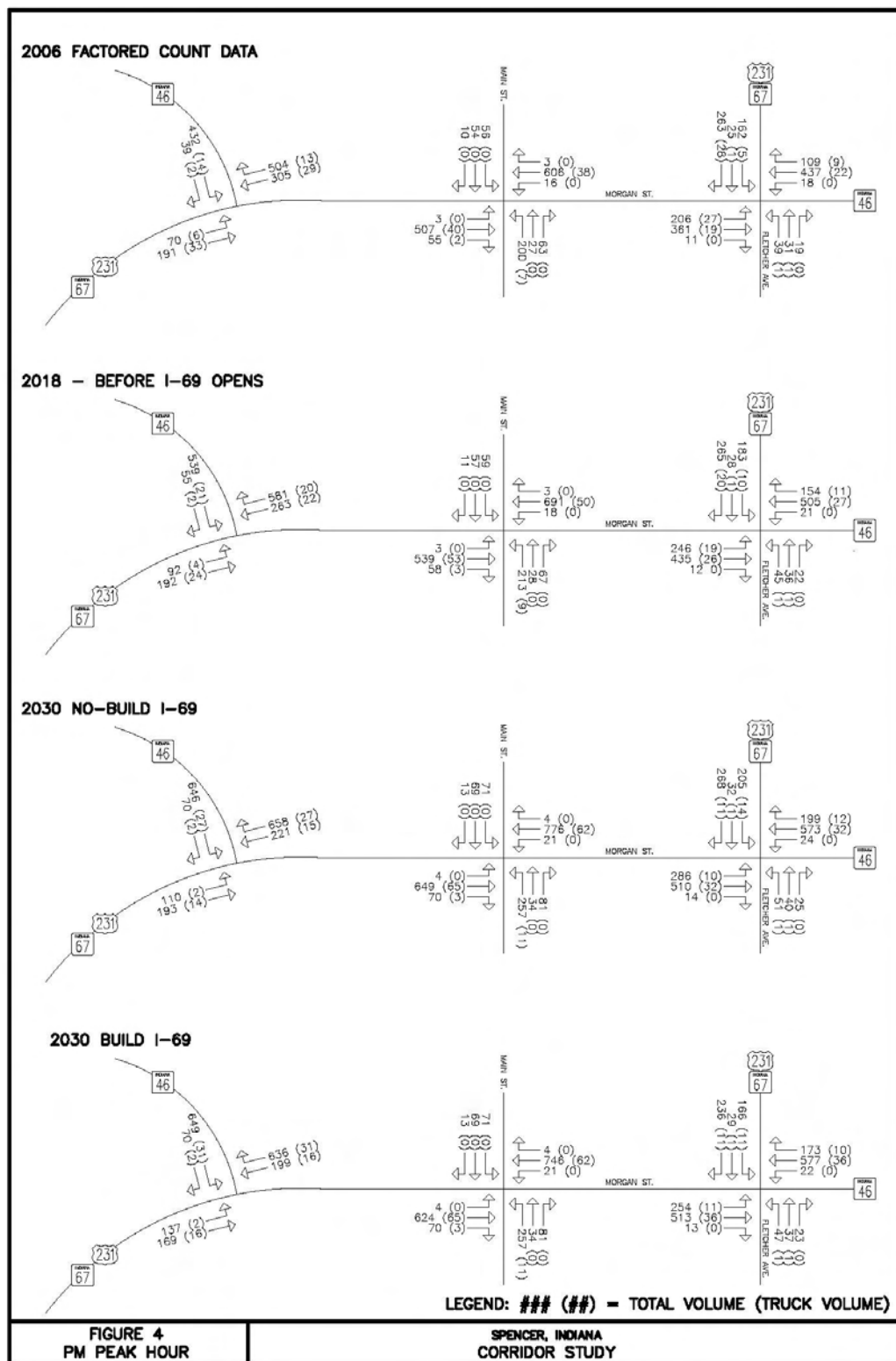
A seasonal adjustment factor was applied to the raw count data to obtain Existing Year (2006) volumes. Design Year (2030) volumes were obtained from travel demand model forecasts. These model runs included traffic volume projections for both passenger cars and for trucks. Two different model runs were performed for this project. One model run assumed that the proposed I-69 in southwestern Indiana will not have been built by 2030. The other model run assumed that I-69 would be fully constructed as a toll-free facility by 2030. These model forecasts provided 2030 turning movements at the East and West intersections. A growth rate for 2006-2030 was calculated in order to derive 2030 turning movements at the Main Street intersection. If I-69 were to be constructed, the most critical year for traffic analysis could be the year prior to I-69 opening, thus peak hour traffic volumes for 2018 were developed by interpolation of the 2006 and 2030 peak hour volumes. A summary of the AM and PM peak hour volumes for 2006, 2018, 2030 No Build I-69, and 2030 Build I-69 can be found on **Figure 3** and **Figure 4**.

### Capacity Analysis and Levels-of-Service

The existing and future capacity of the corridor was measured by Highway Capacity Software (HCS+) and by Synchro/SimTraffic. The three Morgan Street signalized intersections (SR 46 West, Main Street, and Fletcher Avenue) were analyzed in HCS+ and Synchro/SimTraffic, version 6, for the AM and PM peak hours in the 2006, 2018, 2030 No-Build I-69, and 2030 Build I-69 conditions. For all of the HCS analyses, existing signal phasing was input, but signal timings were used that provided balanced approach delays. For all Synchro/SimTraffic traffic modeling analyses, optimized signal timings were input, using existing phasing. Because of the variability







in individual SimTraffic simulations, ten model runs were performed and the results averaged for each scenario. Appropriate truck percentages, which ranged from 6-12% in the peak hours, were input into all capacity analyses.

The capacity of a roadway is described by level-of-service (LOS), which is a qualitative measurement of the operational conditions of traffic. LOS accounts for several factors such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. There are six levels-of-service, ranging from LOS A (the best) to LOS F (the worst). Each level-of-service represents a range of operating conditions and the driver's perception of those conditions. In general, roadways operating at LOS A, B, C or D are not fully saturated and have reserve capacity available. LOS E and LOS F facilities are characterized by large delays and frequent stop-and-start conditions because demand traffic volumes are often greater than the roadway capacity. At signalized intersections, LOS is defined by the average vehicle delay experienced by all motorists at the intersection. **TABLE 1** illustrates the thresholds of delay for each LOS, which were used to analyze the three signals on the US 231/SR 46/SR 67 (Morgan Street) corridor.

**TABLE 1: Level-of-Service (LOS) Thresholds for Signalized Intersections**

	Average seconds of vehicle delay for intersection
LOS A	0 - 10
LOS B	10 - 20
LOS C	20 - 35
LOS D	35 - 55
LOS E	55 - 80
LOS F	> 80

The Existing Year (2006) HCS and SimTraffic analyses showed that all three signalized intersections on Morgan Street are operating at LOS C or better in both AM and PM peak hours. Additionally, all but one of the individual turning movements are currently operating at LOS C or better in the existing peak hours. (SimTraffic shows that the eastbound left turn onto Main Street is operating at LOS D; however, only 3 vehicles were counted making this movement in the peak hour.) LOS C is considered acceptable for all classifications of roadways. The SimTraffic analysis did show maximum intersection queues ranging from 325 feet to 650 feet in the current year. The westbound through approach at the Main Street signal has the greatest queue length (650 feet) of any approach today. Despite the relatively long queue, the capacity analysis indicates that the signals are able to operate effectively and the queued traffic does not have to wait through more than one cycle length. However, due to the closely spaced intersections and driveways along Morgan Street, these queues often block surrounding intersections and driveways. SimTraffic results also showed that in the 2006 PM peak hour (the critical peak hour), the average total delay for an eastbound motorist to progress through all three Morgan Street signals (from SR 46 West through Fletcher Avenue) is 48 seconds. In the westbound direction, the average delay from Fletcher Avenue through SR 46 West is 67 seconds.



The capacity analyses for the future years (2018 and 2030) indicated that all intersections will operate at LOS C or better through 2030, regardless of whether I-69 is constructed in southwestern Indiana. The HCS analyses also showed that all of the approaches at each of the three intersections would operate at LOS C or better in all peak hours in all scenarios. The SimTraffic results indicate that all intersections would operate at LOS C or better; however, several approaches and individual movements are predicted to operate at LOS D by 2030.

No movements are predicted to operate worse than LOS D in any future peak hour under any scenario. Both the HCS and SimTraffic analyses showed that the 2018 peak hours had less vehicle delay than both of the 2030 scenarios (Build I-69 and No-Build I-69). Very few significant differences exist between the 2030 Build I-69 and No-Build I-69 volumes, therefore the 2030 level-of-service and other performance measures are generally unaffected by the construction of I-69.

SimTraffic results predicted maximum intersection queues ranging from 600-850 feet in the 2030 scenarios (versus 325-650 feet currently). These queues would cause blocking of many adjacent intersections and driveways at each signalized intersection. Any existing crash problems at these adjacent locations may be exacerbated as traffic volumes increase. However, the queued traffic is generally served without having to wait through more than one signal cycle, as evidenced by the acceptable levels-of-service. In the 2030 PM peak hour, the cumulative eastbound delay for a motorist traveling through all three Morgan Street signals (from SR 46 West through Fletcher Avenue) would be 67 seconds, a 40% increase over the existing delay. In the westbound direction, the average cumulative delay for a motorist traveling from Fletcher Avenue to SR 46 West would be 100 seconds, an increase of 50% from existing delays.



**TABLES 2-9** illustrate the findings of the level-of-service analyses for the corridor.

**TABLE 2: Highway Capacity Software (HCS) Delays and Level-of-Service**  
(Average intersection delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
West Signal	13.6 B	13.9 B	17.4 B	17.6 B
Main St. Signal	16.1 B	18.5 B	20.0 C	20.0 B
East Signal	19.7 B	22.5 C	25.9 C	28.5 C
<b>PM Peak Hour</b>				
West Signal	15.8 B	16.1 C	17.7 B	17.0 B
Main St. Signal	19.3 B	20.0 B	25.0 C	23.4 C
East Signal	21.9 C	26.0 C	31.8 C	28.7 C

**TABLE 3: SimTraffic Delays and Level-of-Service**  
(Average intersection delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
West Signal	11.4 B	15.1 B	28.2 C	31.1 C
Main St. Signal	10.9 B	15.0 B	18.2 B	17.7 B
East Signal	10.0 B	13.7 B	23.0 C	20.5 C
<b>PM Peak Hour</b>				
West Signal	17.7 B	21.3 C	30.1 C	30.1 C
Main St. Signal	21.0 C	17.5 B	24.4 C	23.0 C
East Signal	15.1 B	20.9 C	29.0 C	23.8 C

**TABLE 4: WEST INTERSECTION (Morgan St. & SR 46 West)**  
**Highway Capacity Software (HCS) Delays and Level-of-Service (LOS)**  
(Average delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	16.4 B	18.5 B	20.9 C	20.7 C
WB Approach	9.9 A	9.8 A	10.8 B	10.9 B
SB Approach	16.1 B	16.6 B	23.3 C	23.6 C
<b>INTERSECTION TOTAL</b>	<b>13.6 B*</b>	<b>13.9 B*</b>	<b>17.4 B*</b>	<b>17.6 B*</b>
<b>PM Peak Hour</b>				
EB Approach	16.4 B	18.8 B	20.3 C	20.8 C
WB Approach	9.9 A	12.8 B	11.5 B	11.0 B
SB Approach	16.1 B	19.5 B	24.2 C	22.5 C
<b>INTERSECTION TOTAL</b>	<b>15.8 B*</b>	<b>16.1 B*</b>	<b>17.7 B*</b>	<b>17.0 B*</b>

\*All movements LOS C or better

**TABLE 5: WEST INTERSECTION (Morgan St. & SR 46 West)**  
**SimTraffic Delays and Level-of-Service (LOS)**  
(Average delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	9.6 A	12.9 B	15.5 B	15.4 B
WB Approach	10.4 B	13.9 B	16.5 B	16.6 B
SB Approach	13.7 B	17.8 B	46.2 D	53.2 D
<b>INTERSECTION TOTAL</b>	<b>11.4 B*</b>	<b>15.1 B*</b>	<b>28.2 C**</b>	<b>31.1 C**</b>
<b>PM Peak Hour</b>				
EB Approach	15.4 B	18.1 B	20.8 C	21.6 C
WB Approach	18.0 B	20.6 C	18.6 B	18.2 B
SB Approach	18.6 B	23.9 C	51.0 D	50.6 D
<b>INTERSECTION TOTAL</b>	<b>17.7 B*</b>	<b>21.3 C*</b>	<b>30.1 C**</b>	<b>30.1 C**</b>

\*All movements LOS C or better

\*\*SBLT and SBRT at LOS D

**TABLE 6: MAIN STREET INTERSECTION****Highway Capacity Software (HCS) Delays and Level-of-Service (LOS)**

(Average delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	17.3 B	21.1 C	23.5 C	23.4 C
WB Approach	13.3 B	13.0 B	11.9 B	12.6 B
NB Approach	18.0 B	21.4 C	25.1 C	24.3 C
SB Approach	17.7 B	20.9 C	24.3 C	23.5 C
<b>INTERSECTION TOTAL</b>	<b>16.1 B*</b>	<b>18.5 B*</b>	<b>20.0 C*</b>	<b>20.0 B*</b>
<b>PM Peak Hour</b>				
EB Approach	18.9 B	18.0 B	25.9 C	23.9 C
WB Approach	19.9 B	21.2 C	25.1 C	22.9 C
NB Approach	19.3 B	21.2 C	24.8 C	24.8 C
SB Approach	17.9 B	19.4 B	20.6 C	20.6 C
<b>INTERSECTION TOTAL</b>	<b>19.3 B*</b>	<b>20.0 B*</b>	<b>25.0 C*</b>	<b>23.4 C*</b>

\*All movements LOS C or better

**TABLE 7: MAIN STREET INTERSECTION****SimTraffic Delays and Level-of-Service (LOS) (Average delays in seconds/vehicle)**

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	12.4 B	17.5 B	23.0 C	21.9 C
WB Approach	5.4 A	8.5 A	9.3 A	9.7 A
NB Approach	18.0 B	22.2 C	25.9 C	25.0 C
SB Approach	18.1 B	21.9 C	23.8 C	24.3 C
<b>INTERSECTION TOTAL</b>	<b>10.9 B*</b>	<b>15.0 B*</b>	<b>18.2 B*</b>	<b>17.7 B*</b>
<b>PM Peak Hour</b>				
EB Approach	22.4 C	17.6 B	27.1 C	26.7 C
WB Approach	16.8 B	14.4 B	19.3 B	17.5 B
NB Approach	27.0 C	24.4 C	30.1 C	27.4 C
SB Approach	21.6 C	21.4 C	25.0 C	23.1 C
<b>INTERSECTION TOTAL</b>	<b>21.0 C**</b>	<b>17.5 B*</b>	<b>24.4 C***</b>	<b>23.0 C****</b>

\*All movements LOS C or better

\*\*EBLT at LOS D

\*\*\*EBLT, WBLT, and NBLT at LOS D

\*\*\*\*EBLT and WBLT at LOS D

**TABLE 8: EAST INTERSECTION (Morgan St. & Fletcher Ave.)****Highway Capacity Software (HCS) Delays and Level-of-Service (LOS) (Average delays in seconds/vehicle)**

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	19.8 B	23.1 C	27.0 C	26.4 C
WB Approach	18.9 B	21.8 C	24.2 C	29.9 C
NB Approach	19.5 B	19.7 B	21.2 C	25.8 C
SB Approach	21.3 C	22.9 C	28.2 C	33.2 C
<b>INTERSECTION TOTAL</b>	<b>19.7 B*</b>	<b>22.5 C*</b>	<b>25.9 C**</b>	<b>28.5 C*</b>
<b>PM Peak Hour</b>				
EB Approach	20.0 C	23.5 C	32.3 C	27.7 C
WB Approach	23.7 C	28.0 C	31.3 C	29.8 C
NB Approach	20.1 C	23.3 C	24.4 C	25.0 C
SB Approach	23.0 C	29.0 C	35.4 D	30.6 C
<b>INTERSECTION TOTAL</b>	<b>21.9 C*</b>	<b>26.0 C*</b>	<b>31.8 C*</b>	<b>28.7 C*</b>

\*All movements LOS C or better

\*\*WB through movement at LOS D

**TABLE 9: EAST INTERSECTION (Morgan St. & Fletcher Ave.)****SimTraffic Delays and Level-of-Service (LOS)**

(Average delays in seconds/vehicle)

	2006	2018	2030 No-Build I-69	2030 With I-69
<b>AM Peak Hour</b>				
EB Approach	8.6 A	10.9 B	16.1 B	15.6 B
WB Approach	10.0 B	15.9 B	32.7 C	27.1 C
NB Approach	11.7 B	15.3 B	20.1 C	19.3 B
SB Approach	12.5 B	16.2 B	23.7 C	21.6 C
<b>INTERSECTION TOTAL</b>	<b>10.0 B*</b>	<b>13.7 B*</b>	<b>23.0 C****</b>	<b>20.5 C*</b>
<b>PM Peak Hour</b>				
EB Approach	10.9 A	17.3 B	21.4 C	17.1 B
WB Approach	18.3 B	25.2 C	40.7 D	33.3 C
NB Approach	20.6 C	22.2 C	24.1 C	23.1 C
SB Approach	17.0 B	19.7 B	24.7 C	20.0 B
<b>INTERSECTION TOTAL</b>	<b>15.1 B*</b>	<b>20.9 C*</b>	<b>29.0 C**</b>	<b>23.8 C***</b>

\*All movements LOS C or better    \*\*WBLT and WB through movements at LOS D

\*\*\*WBLT, WB through, SBLT, and SB through movements at LOS D

\*\*\*\*SBLT and SB through movements at LOS D



## 4.6 Crash Data

### Crash Analysis

Crash data for the years 2003, 2004, and 2005 were obtained from INDOT and the Town of Spencer for US 231/SR 67 from Franklin Street/Fifth Avenue to Hillside Avenue and for SR 46 from Hillside Avenue to Crane Street. Crashes on Main Street and Fletcher Avenue (south of Morgan Street) in the proximity of Morgan Street were also included in the analyses. This geographic area covers the overlapping section of state routes, plus approximately 1000 feet along the state routes in each direction outside the overlap section. Analysis of this crash data indicated a total of 206 crashes during the three-year period from 2003-2005. The data revealed that 36 (17%) of the crashes involved injuries, while the remaining 170 (83%) crashes only involved property damage. No fatalities were reported in the study area during this time period. A spot map containing all of these reported crashes is shown on **Figure 5**. As evidenced by the spot map, most of the collisions (84%) in the Spencer study area occurred at intersections.

The crash data was entered into the Hazard Analysis Tool (HAT) software program to determine which, if any, of the study area intersections had high crash rates. **Table 10** shows the results of the HAT analysis for intersections in the study area.

**TABLE 10: CRASH ANALYSIS FOR INTERSECTIONS**

Using Hazard Analysis Tool (HAT) software

Location	Total Crashes	Injury Crashes	Index of Crash Frequency	Index of Crash Cost
Morgan Street & Franklin St./Fifth Ave.	17	4	-0.03	-0.49
Morgan Street & SR 46 West (West Signal)	21	2	0.34	-0.50
Morgan Street & Vandalia St./Lincoln St.	6	1	-1.42	-1.30
Morgan Street & Short Street	4	1	-1.50	-1.32
Morgan Street & Wolf Street	5	1	-1.46	-1.31
Morgan Street & West Street	5	1	-1.48	-1.32
Morgan Street & Montgomery Street	8	0	-1.36	-1.35
Morgan Street & Main Street	16	2	-0.14	-0.73
Morgan Street & Washington Street	7	3	-1.41	-1.20
Morgan Street & Harrison Street	4	0	-1.51	-1.38
Morgan Street & East Street	7	1	-1.39	-1.30
Morgan Street & Fletcher Avenue (East Signal)	39	4	1.19	0.15
Fletcher Avenue & North Street	3	1	-1.47	-1.28
Fletcher Avenue & Hillside Avenue	4	0	-1.42	-1.37
SR 46 West & Hillside Avenue	9	2	-1.07	-1.13

The Index of Crash Frequency is used to determine whether the total number of crashes is higher or lower than statewide averages. The Index of Crash Cost is used to determine locations where crash severity is greater than the statewide average. With both indices, values greater than zero indicate a location that exceeds the statewide average. Based on Table 10, the East Signal and the West Signal are the only intersections that exceed the statewide average for crash frequency. The Morgan Street and Fletcher Avenue intersection was the only intersection that exceeded the statewide average for crash severity. This intersection contains a free-flow southbound right turn movement on which many of the crashes occurred. This free-flow right turn lane is immediately merged into the westbound Morgan Street through lane, a condition that results in drivers making unexpected stops while trying to merge. A number of angle collisions involving eastbound left turn vehicles also occurred at this intersection. None of the unsignalized intersections in the study area exceeded statewide averages for crash frequency or severity, although the Morgan Street and Fifth Avenue/Franklin Street five-legged intersection was very close to a positive crash frequency score.

Additionally, crash analyses using the HAT software were performed for the roadway segments in the study area. The roadway segment crash analysis is shown in **Table 11**.

**TABLE 11: CRASH ANALYSIS FOR ROADWAY SEGMENTS**

Using Hazard Analysis Tool (HAT) software

Location	Total Crashes	Injury Crashes	Index of Crash Frequency	Index of Crash Cost
<b>Morgan Street From Franklin St./Fifth Ave. to Crane St.<sup>1</sup></b>	19	6	-0.43	-0.48
<b>Morgan Street From Franklin St./Fifth Ave. to Crane St.<sup>2</sup></b>	100	22	1.68	1.78
<b>Fletcher Avenue From Morgan St. to Hillside Ave.</b>	1	0	-0.59	-1.04
<b>SR 46 West From Hillside Ave. to Morgan St.</b>	12	4	0.42	0.86

<sup>1</sup> This analysis removes all intersection and intersection-related crashes

<sup>2</sup> This analysis includes all crashes along Morgan Street, except for those at signalized intersections

Two separate HAT analyses were performed for the same Morgan Street corridor. The first analysis shown in Table 11 only includes non-intersection crashes, and indicates that Morgan Street has crash rates less than the statewide average. The second analysis includes all crashes at unsignalized intersections in the corridor and indicates that Morgan Street exceeds the statewide average crash rates for urban two-lane state routes. The numerous closely-spaced driveways and intersections likely are contributing factors to the crash on Morgan Street. Because the crash indices for this segment are positive but less than 2.00, further investigation would be necessary to ascertain whether this is a high crash location. The results in Table 11 also show that SR 46 between Hillside Avenue and Morgan Street has experienced a higher crash frequency and crash severity than the statewide average for urban two-lane state route arterials. Eight of the twelve crashes in this section of roadway were right angle crashes or crashes involving vehicles turning

in or out of driveways. The numerous commercial driveways, many of them with very long curb cuts, probably contribute to the high crash rates. However, Table 11 also shows that the crash rate for this section is well below the average urban crash rate. A committed reconstruction project will improve access control and construct a two-way left-turn lane in this section of SR 46. Since most of the crashes in this section involved vehicles turning in and out of driveways, the access control and two-way left turn lane would address most of the safety concerns in this section and should significantly reduce crashes. Fletcher Avenue has crash rates considerably less than the statewide averages.

#### **4.7 Existing Railroad**

##### **Railroad Relocation Study**

An existing Indiana Southern Railroad (ISRR) line runs through Spencer adjacent to the south side of Franklin Street approximately one block south of Morgan Street. The ISRR operates two trains per day through Spencer transporting coal and mixed freight. The trains are required to maintain a 10-mph speed limit through town. The seventeen at-grade crossings within Spencer do not have lights or gates and the intersecting roadways do not meet design standards. Even though the railroad tracks are within 10 feet of the edge of Franklin Street pavement, the railroad tracks are often at considerably higher elevation than the street level. In some cases, the tracks are over 2 feet higher than Franklin Street, which results in substandard vertical alignment on the streets that cross the tracks. Additionally, these intersecting streets cause the profile of the westbound lanes of Franklin Street to abruptly rise and fall in the intersection areas. Tracks do not cross over US 231/SR 46/SR 67 within the Corporate Limits of Spencer. The ISRR facility in Spencer is used for small maintenance rail crew meeting and pick-up.

As part of the 2001 study, INDOT conducted a relocation study for the ISRR line. The railroad relocation study proposed approximately 2.5 miles of new track on 20'-0" elevated rail bed on new alignment, out of Spencer to the south of the White River. This would eliminate 17 grade crossings in town, the potential need for active signals along Franklin Street and grade crossing active signals at Main and Washington Streets. The relocated line would require one new gated crossing on Main Street (C.R.25 East) south of Spencer and have two new bridge crossings over the White River south of Spencer. In addition two new rail switches would be needed for access to existing spur line in Spencer. The primary environmental feature that would impact the potential relocation of the railroad is the vast area that borders the White River on the south side of the Town of Spencer that is considered the 100-year floodplain.



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## 4.8 Endangered Species

The project area is located in Washington Township of Owen County, Indiana. Owen County, located in west central Indiana is representative of the region's topography that includes a mixture of rugged hills and abundant stream valleys with a great diversity of topographic features.

### Indiana Bat

The study area is within the range of the federally endangered Indiana bat and federally threatened bald eagle. Although no Indiana bats have been observed in Owen County, potentially suitable habitat does exist within Owen County and Washington Township. There is suitable summer Indiana bat habitat present within Owen County and Washington Township but no summer maternity colonies of Indiana bat have been identified in Owen County. There are no records of Indiana bats in Washington Township. Currently there is no record of a bat survey conducted in the area.

Alternatives to be considered within Spencer will not appear to negatively impact Indiana bat summer habitat in Washington Township. Removal of some residential trees may occur with these alternatives. Depending on the number of trees to be removed, the U.S. Fish and Wildlife Service (USFWS) may require tree cutting between 15 September and 15 April when Indiana bats do not occupy potential roost trees.

Construction of any new roadway alignment or relocation of the Indiana Southern Railroad outside Spencer where forested habitat is removed has the potential to impact Indiana bat summer habitat. If such alternatives are considered, consultation with USFWS will be required. Such consultation would likely result in a request for tree cutting to occur only when Indiana bats are not present in their summer habitat (i.e., after 15 September and before 15 April). If this is not possible (i.e., trees must be removed between 15 April and 15 September) then it is anticipated that USFWS would request summer mist net surveys.

### Bald Eagle

In Indiana, summering sub-adult and adult bald eagles generally occupy central and southern Indiana. The majority of nesting eagles are located on the White, Patoka, and Wabash Rivers of central and southern Indiana. The White River corridor is an important bald eagle wintering area throughout Washington Township.

Within Washington Township in Owen County, Indiana, until recently, there was one known bald eagle nest. The nest was located along the White River near Romona, approximately 3 miles northeast of the town of Spencer. In early June 2006, the sycamore tree containing the nest fell into the White River and is no longer considered an active nest. No impacts to bald eagle nests or wintering areas are anticipated to occur within the project area.

## 4.9 Karst Features

A review of karst features was conducted in September 2006 by Environmental Solutions & Innovations, Inc. The karst belt in Indiana extends from Crawford and Harrison Counties in southern Indiana northwest to Owen and Putnam Counties. Owen County and Washington

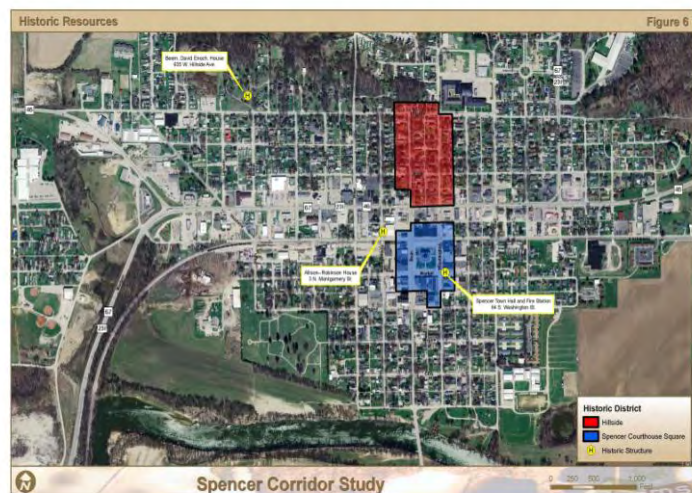
Township are located in the Potential Karst Features Area in Indiana. The September 2006 review indicated that approximately 130 caves, springs, and related karst features are located in Washington Township. The majority of the caves are found in the northwest and north-central portion of Washington Township and are associated with McCormick's Creek State Park east of Spencer. Several cave and sinkhole areas are also found in northeast Washington Township. No caves, springs, sinkholes, or sinking stream basins are located along the US 231 and SR 46 travel corridor within the town of Spencer.

Most of the karst features are located outside the general travel corridor within Spencer. Alternatives under consideration within Spencer are not anticipated to negatively impact caves or other karst features in Washington Township. Construction of any new roadway alignment or relocation of the Indiana Southern Railroad outside Spencer may have the potential to impact karst features. If new roadway alignment construction is proposed, delineation of karst groundwater zones and tracing of karst flowpaths may be needed to further determine locations and interconnections of karst features and impacts from construction.

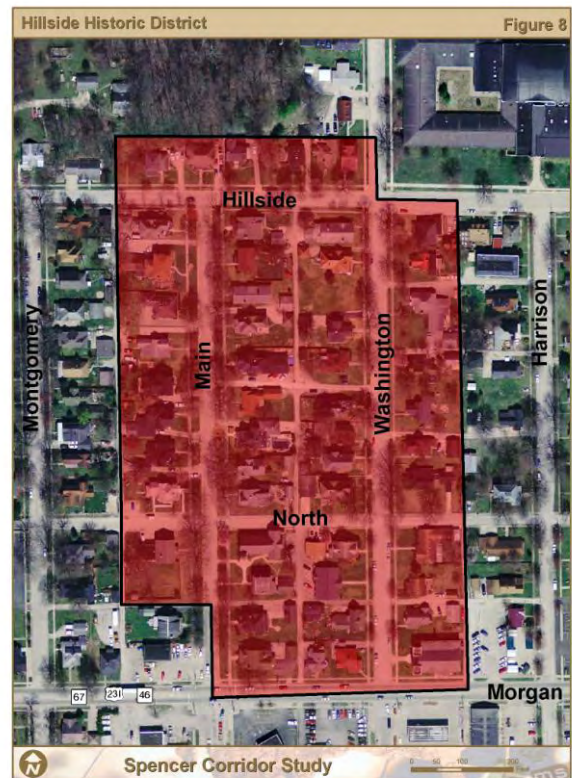
#### 4.10 Historic Structures

According to the Owen County Interim Report, Washington Township was the site of Owen County's first permanent settlement in 1816. A total of 263 historic structures are located throughout Washington Township and the Town of Spencer. The Town of Spencer contains two significant Historic Districts: the Spencer Courthouse Square Historic District and the Hillside Historic District as shown in **Figures 7 and 8**.

The Hillside Historic District contains 55 previously documented historic structures, of which 12 structures are of notable or outstanding historic value and eligible for the National Register of Historic Places (NRHP). The Spencer Courthouse Square Historic District (SCSHD) contains 44 previously documented historic structures of which 11 structures are of notable or outstanding historic value. The SCSHD contains the Owen County Courthouse and the Spencer Town Hall and Fire Station, two sites listed on the Indiana Register of Historic Sites & Structures and the National Register of Historic Places. There are two additional historic structures located within Spencer, but not in the existing historic districts, with historic significance. The Allison-Robinson House (3 N. Montgomery St.) and the Beem, David Enoch, House (635 W. Hillside Ave.) are listed on the NRHP.







McCormick's Creek State Park includes 19 historic structures of which 11 structures are of notable or outstanding historic value and eligible for the National Register of Historic Places. The area contains the Recreation Building/Nature Museum, the Park Entrance & Gatehouse, and the Stone Arch Bridge over McCormick's Creek. These sites are listed on the Indiana Register of Historic Sites & Structures and the National Register of Historic Places. There are 26 historic cemeteries found within Washington Township. The Riverside Cemetery is located on the westside of Spencer. Project impacts would be determined based on the alternative and related construction activities.

#### 4.11 Archaeological Potential

There are 74 archaeological sites registered within Washington Township, with five sites within the surrounding area of Spencer. Of the existing sites in Washington Township, 16 will require additional archaeological assessment by a qualified archaeologist. The existing sites were identified by record searches. Due to the proximity and number of previously recorded archaeological sites to the project area, there is potential for additional archaeological sites to be found in those areas of similar topography that are within the project area. Also, the project may impact previously undisturbed property. A Phase IA archaeological field reconnaissance will be necessary for the project area.

#### **4.12 Section 106 Review**

Impacts to any of the cultural resources within Washington Township and the Town of Spencer will require Section 106 Coordination. Potential Consulting parties include:

1. Federal Highway Administration
2. Indiana Department of Transportation
3. Indiana State Historic Preservation Officer
4. Historic Landmarks Foundation of Indiana.
5. Historic Landmarks Foundation of Indiana
6. Indiana Historical Bureau
7. Indiana Historical Society
8. Owen County Preservations Inc
9. Owen County Historical & Genealogical Society
10. Owen County Historian
11. Peoria Tribe of Indians of Oklahoma

#### **4.13 Zoning & Land Use**

Owen County is not included within an existing Metropolitan Planning Organization in Indiana and currently has no formal Comprehensive Land-Use Plan. Land use and development in the study area is regulated by both Owen County and the Town of Spencer zoning ordinances. The Owen County Planning Ordinance was established by the Owen County Commissioners in the mid-1990s, but was later repealed due to strong public opposition. In 2005 the Owen County Advisory Planning Commission was established to provide basic planning and zoning services for Owen County. The Advisory Plan Commission is currently developing a draft comprehensive land use plan for Owen County.

The Town of Spencer has local zoning authority over land uses within the Town of Spencer corporate limits. The Spencer Planning Commission oversees all zoning classifications and meets monthly to review proposed re-zonings and variance requests. Spencer does not have a comprehensive land use plan. Land use in the study area is diverse with a multitude of land uses such as commercial, residential, park and open space.

#### **4.14 Economic Initiatives**

Owen County Chamber of Commerce Economic Development Corporation provides the leadership for economic development within Owen County. They are currently working with the Owen County Commissioners and Owen County Council to develop a series of Economic Revitalization Zones within the County to offer tax abatement opportunities for potential industrial and commercial development. Owen County is developing plans to offer tax incentives and industrial grants in the designated zones and proposing to extend zoning out within one mile of Spencer as potential Economic Revitalization Zones. The first area being examined as an

Economic Revitalization Zone for potential development is along the SR 43 corridor, south of SR 46 in Washington and Clay Townships.

#### 4.15 Parklands & Nature Preserves

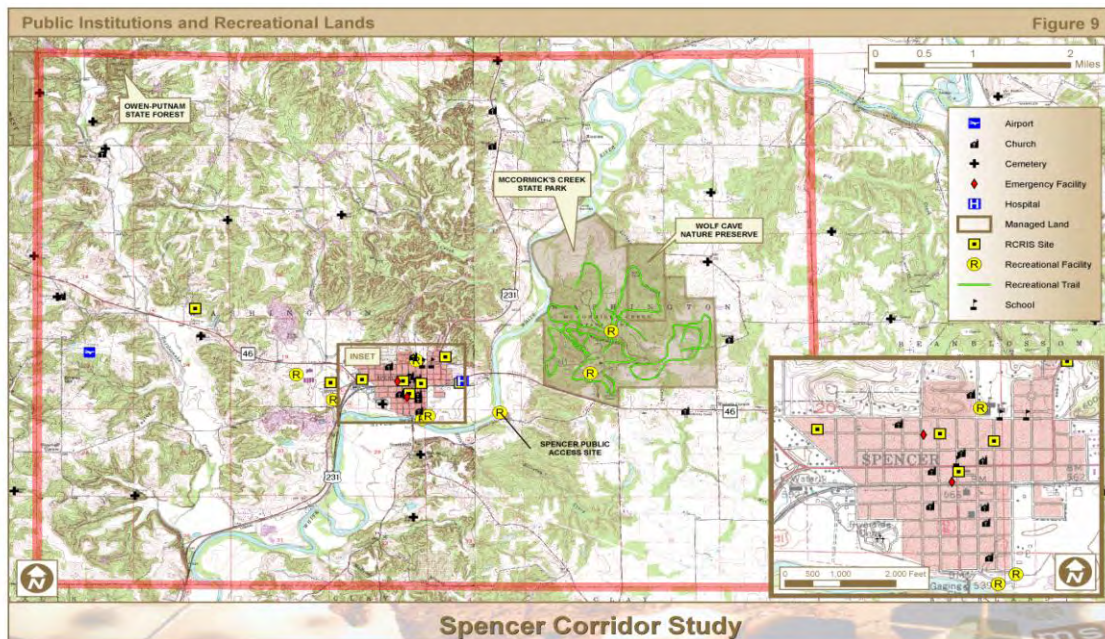
McCormick's Creek State Park is located in eastern Washington Township approximately 2 miles east of Spencer near the intersection of SR 46 and SR 43. McCormick's Creek is approximately 1,924 acres and was Indiana's first state park, established in 1916.

Annual attendance for 2003-2004 was over 588,000 people. The park is open year-round and includes hiking trails, camping, family cabins, and the Canyon Inn. The cabins and camping facilities close on November 1 each year but the Canyon Inn is open year round. The park enjoys a large seasonal influx of visitors in the fall to enjoy the many acres of foliage.

The Wolf Cave Nature Preserve is located in Washington Township within the boundaries of McCormick's Creek State Park. The site, 214 acres in size, is owned by the Indiana Department of Natural Resources. The area contains Wolf Cave and Litten's Branch and significant scenery along McCormick's Creek. The preserve contains several forest associations and is rich in mosses and ferns.

The Town of Spencer also has a variety of recreational public park facilities that are located in the study area.

All of the aforementioned public park and recreational facilities would invoke a Section 4(f) review should they be impacted by a transportation improvement project.





## 4.16 Water Resources

### Wetlands & Streams

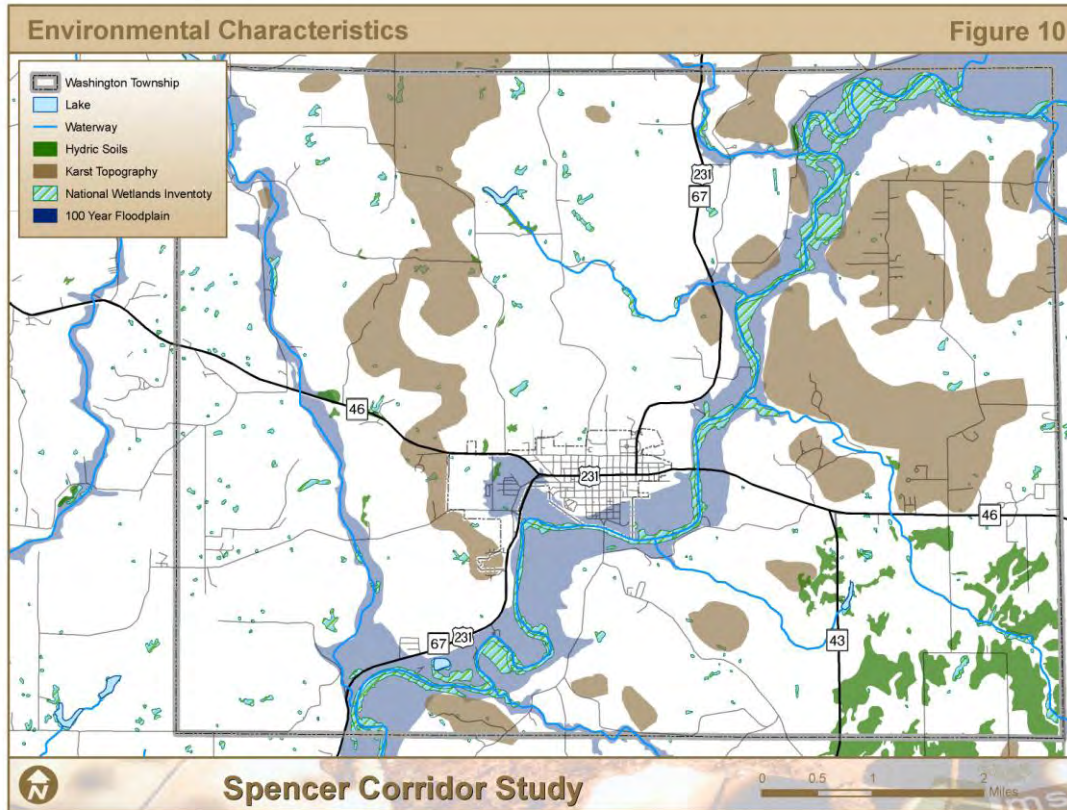
Small pocket wetlands exist throughout Owen County and Washington Township. The large, contiguous wetlands in the county are generally located along the streams and rivers. The White River corridor passes entirely through Washington Township and along the south side of Spencer. To the east of Spencer, SR 46 crosses over the White River corridor. Review of NWI mapping indicates flood plain wetlands that border the river channel. Significant streams/creeks in Washington Township include Elliston Creek, McBride Branch, Rattlesnake Creek and Fall Creek. None of these waterways flow directly within the Spencer corporate limits.

### Floodplains

The most recent FIRM maps were reviewed for identification of the 100-year floodplain in the study area. As reflected in Figure 10, the 100- year floodplain borders the White River as it traverses Washington Township. It is most prevalent along the southern border of the Town of Spencer and at the western limits of the town. The 100-year floodplain is adjacent to the US 231/SR 67 corridor on the southwestern side of the Town of Spencer. Potential improvements to this portion of the roadway will need to incorporate design features to accommodate the floodplain.

### Ground Water

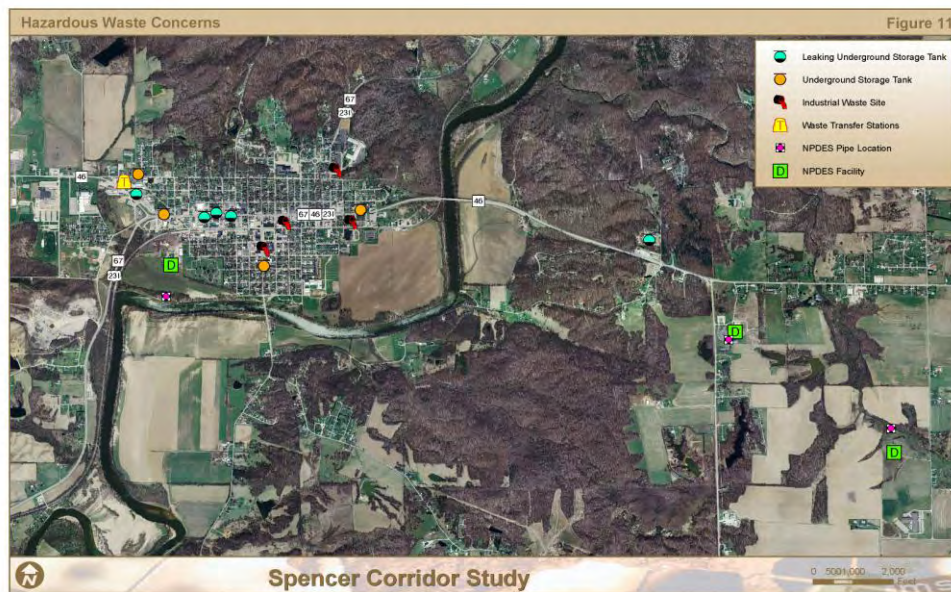
The Bean Blossum Patricksburg Water Company is the drinking water provider for Spencer and has a well field located on the south side of town where Main Street crosses over the White River. This location has been delineated as a wellhead protection area with six groundwater wells with a total capacity of six million gallons per day. There are plans in development for an additional treatment facility at the same location that will provide an additional three million gallons per day capacity with additional softening and filtration.



#### 4.17 Potential Hazardous Waste Sites

There are three possible hazardous material sites located along the US 231/SR 46 roadway within the Town of Spencer. There is one additional site on SR 46 just east of Fletcher Avenue and west of the west junction with US 231/SR 67. Each of these sites has been identified by the Indiana Department of Environmental Management, as a Leaking Underground Storage Tank (LUST) location. These sites will require a Phase I Environmental Site Assessment (ESA) if impacted. No CERCLA or NPL sites were located within Washington Township. A search of existing databases indicated nothing reported for the railroad and spur lines of the ISRR.





#### 4.18 Noise and Air Quality

Under the auspices of the Clean Air Act, Owen County, including Washington Township, is not currently identified as a non-attainment area. As there are a variety of noise sensitive receptors (residential, recreational) in the study area, a noise study will likely be required when feasible alternatives are selected for future consideration.

#### 4.19 Environmental Justice Concerns

Owen County is located in a rural setting with little diversity. The Town of Spencer is the only notable population center in Washington Township. Based on the 2000 Census, Owen County has a population of approximately 22,000. Of this total 98.4% are classified as White, with 0.6% Hispanic, 0.4% Native American, 0.2% Asian, and 0.3% Black. The total minority population for Owen County is approximately 1.5%. This percentage is substantially lower than the State average of 14.6%.

Low-income individuals are also a consideration under environmental justice. Accordingly, Owen County with 10.3% of its population at or below the poverty level, is higher than the State of Indiana average of 10.0%.

## 5.0 COMMITTED PROJECTS

Various projects have been planned, developed, or under construction in Owen County. Table 12 lists those projects in the INDOT's Statewide Transportation Improvement Program for fiscal year 2005-2007 in Owen County. Table 12a lists those projects in the draft 2006 – 2008 program in Owen County. These projects are all considered as committed for the purpose of the US 231/SR 46 Corridor Planning Study and Environmental Assessment.

**TABLE 12. INDOT Transportation Improvement Program – Owen County FY 2005-2007**

Project	Sponsor	Description	Phase	Road	Cost	FY
0089420	County	Replacement of Bridge # 14 over Mill Creek	CN	CR 100E	\$478,000	2005
9608230	INDOT	Replacement of Bridge over the West Fork Jordan's Creek	PE	SR 42	\$111,000	2005
9303350	INDOT		RW	SR 42		2006
9028555	INDOT	Rehabilitation of Bridge Over Cataract Lake.	CN	SR 42	\$2,347,000	
0100478	INDOT	Small Structure Replacement, 1.05 miles north of SR 67	RW	SR 246	\$20,000	2005
9701890	INDOT	Replacement of Bridge over Meadow Brook Creek, 0.3 miles South of SR 46.	RW CN	US 231		
0200370	INDOT	Guardrail Improvements from the town of Freedom north to the N junct. SR 67/US 231	CN	US 231	\$1,450,000	2005
9608210	INDOT	Replacement of Bridge over the West Fork of Fish Creek	CN	SR 246	\$820,000	2007

**TABLE 12a. INDOT Transportation Improvement Program – Owen County FY 2006-2008**

Project	Sponsor	Description	Phase	Road	Cost	FY
0200741	County	Replacement of Bridge # 102 Over Fulk Creek	PE	CR 750 S	\$20,000	2006
0200742	County	Replacement of bridge #179 Over Conrail Railroad	PE	CR 460 S	\$100,000	2006
0200743	County	Replacement of Bridge #103 Over Branch of Bush Creek	PE	CR 750 S	\$73,000	2006
0201281	INDOT	Replacement of Bridge Over Rattlesnake Creek	PE	US 231	\$60,000	2008
0100478	INDOT	Replacement of Small Structure 1.05 miles North of SR 67	PE RW	SR 67	\$50,000	2006 2007
0400568	INDOT	Slide Correction, 1.20 & 1.26 miles north of SR 42	CN	SR 243	\$100,000	2006

In the Spring of 2006 the INDOT Major Moves program was approved by the Indiana State Legislature establishing a 10-year (2006-2015) fully funded highway construction plan. Table 12b lists those projects in the INDOT's Major Moves program for Owen County. These projects are considered as committed for the purpose of the US 231/SR 46 Corridor Planning Study and Environmental Assessment.

**TABLE 12b. INDOT Major Moves Projects – Owen County**

<b>Project</b>	<b>Sponsor</b>	<b>Description</b>	<b>Road</b>	<b>Cost</b>	<b>FY</b>
0014380 0200422 0200423 0300629 0300630 0300631	INDOT	Road Reconstruction from SR 246 to W junct. SR67/US231. Includes 3 Bridges, Signals & Signs	SR 46	\$19,339,951	2011
0501065	INDOT	Resurfacing from the north junction of SR 59 to SR 46	SR 246	1,340,100	2006
0500986	INDOT	Resurfacing from US 231 to Red Hill Road	SR 46	\$800,000	2006

The planned reconstruction of SR 46 will widen the roadway to a 3-lane facility in the study area west of US 231/SR 67. According to the November 21, 2001 Engineer's Report for the project, curb-and-gutter will be provided on this section of SR 46, which experienced a high rate of crashes. With the new curb-and-gutter section, driveway accesses would be better defined and potentially consolidated. The Engineer's Report also states that the District has suggested the realignment of Franklin Street to form the fourth leg of the US 231/SR 67 and SR 46 intersection. However, the report did not show any documentation that this realignment of Franklin Street would result in a better intersection level-of-service. It is suggested that further study of the proposed Franklin Street realignment be undertaken in the subsequent phases of the US 231/SR 46 Corridor Study.

The INDOT 2030 Long-Range Transportation Plan includes two projects with added travel lanes in Owen County near Spencer. The projects listed in Table 12b will add capacity to SR 46 to the east of Spencer and US 231 to the north. These projects are identified but currently unfunded and are not considered as committed projects for the purpose of the US 231/SR 46 Corridor Planning Study and Environmental Assessment.

**TABLE 12c. The INDOT 2030 Long-Range Transportation Plan – Owen County**

<b>Sponsor</b>	<b>Description</b>	<b>Road</b>	<b>FY</b>
INDOT	Added Travel Lanes from the Town of Spencer east to Ellettsville (Monroe County)	SR 46	2028
INDOT	Added Travel Lanes from the Town of Spencer north to the north junction with SR 67 (6.2 miles)	US 231	unfunded or illustrative

## **6.0 PURPOSE AND NEED STATEMENT**

A study of the US 231/SR 46/SR 67 corridor through Spencer (Morgan Street) was initiated due to local concerns about traffic congestion and mobility. A traffic investigation of this corridor was conducted by INDOT in 2001, which identified several locations as having failed or unacceptable levels-of-service. Subsequent to the completion of this traffic investigation, several roadway improvements have been implemented that have greatly reduced delays on Morgan Street. However, deficiencies still exist in the corridor that are a hindrance to roadway safety and mobility.

The INDOT 2025 Long-Range Strategic Plan has classified US 231/SR 67 northeast of Spencer and SR 46 east of Spencer as Statewide Mobility Corridors. The portion of US 231/SR 67 through downtown Spencer and southwest of Spencer and SR 46 west of Spencer are classified as Regional Mobility Corridors. US 231/SR 46/SR 67 is a primary north-south highway corridor in Owen County and SR 46 provides key east-west connectivity in Indiana. All of these roadways are significant commuter routes as they connect portions of southwestern Indiana, including Spencer, with Bloomington, Indianapolis and Terre Haute. The Statewide Mobility Corridor designation is the highest classification and is typified by higher roadway design speeds and standards to accommodate large volumes of traffic. It is imperative that the highway systems within these corridors operate efficiently and safely for commuter and freight traffic.

### **6.1 Roadway Efficiency**

The Town of Spencer is Owen County's largest community and the county seat. The Owen County Courthouse, located in Spencer, is the location for all the major county agencies and city offices

As is typical with many rural communities in Indiana, the residential and commercial development in Spencer has spread outward from the Courthouse and surrounding central business district around the main roadway/corridor, US 231/SR 67/SR 46. The existence of both commercial/retail and some residential development along US 231/SR 46/SR 67 (Morgan Street) has led to numerous closely-spaced access points in the form of intersections or driveways along both sides of the roadway. An inventory of existing access points for Morgan Street between SR 46 West and Fletcher Avenue, including public streets, indicated an access point density of 88.0 accesses per mile. Other access issues in the study area include commercial properties with

multiple driveways, excessively wide driveway openings, and driveways closely spaced with adjacent driveways or intersections. These driveways and intersections contribute to slowing of traffic for turning movements, create delays and hamper the efficiency of the corridor. Capacity analysis of the corridor showed that all intersection levels-of-service are expected to be at LOS C or better through 2030, some individual movements will be operating at an unacceptable level-of-service (LOS D). Traffic queues at signals along Morgan Street, which currently extend into adjacent intersections during peak hours, are predicted to lengthen further over the next two decades.

## **6.2 Roadway Safety**

The crash data (2003-2005) for the project area indicates that 206 crashes occurred during the three-year period. The signal at the east end of the US 231/SR 46/SR 67 overlap section (Morgan Street and Fletcher Avenue) is the only intersection in the study area that exceeded the statewide average for both crash frequency and crash severity. The two most prevalent types of crashes at this intersection were right-angle collisions and rear-end collisions on the southbound free-flow right turn movement. Vehicles stopping to complete a merge into westbound traffic contributed to many of the southbound right turn rear-end crashes. If crashes at unsignalized study area intersections are included, the Morgan Street corridor in Spencer does exceed the statewide average crash rates. High through traffic volumes combined with the numerous closely-spaced intersections and driveways are likely causes of the high crash rates on Morgan Street. The west junction of US 231/SR 67 and SR 46 exceeded the statewide average for crash frequency, but not for crash severity. While 84% of the study area crashes were at intersections or were intersection-related, the numerous commercial driveways along Morgan Street create a confusing situation for motorists. Many of these access points have excessively wide driveway openings, and are often not aligned with the access point across the street. These conditions can lead to safety problems of increased conflict points and vehicles entering and exiting Morgan Street at unexpected places.

## **6.3 Roadway Geometrics**

US 231/SR 46/SR 67 (Morgan Street) through Spencer is a 36-foot wide section of pavement, with one 12-foot through travel lane in each direction and a 12-foot center lane. Much of the center lane of Morgan Street is used for dedicated left turn lanes, and is striped as a two-way left turn lane in the remaining locations. Morgan Street is a curbed facility with no usable shoulder width. Analysis of the INDOT Design Manual criteria for two-lane arterials indicates that the cross-section of Morgan Street should be no less than 40 feet wide from curb-to-curb in order to provide standard widths for travel lanes, shoulders, and curb offsets. Additionally, the curb radii at most of the intersections along Morgan Street are insufficient, which causes vehicle delays as traffic enters and exits the roadway. These substandard roadway geometrics could lead to an increasing safety problem as traffic volumes continue to grow along the US 231/SR 46/SR 67 (Morgan Street) corridor.



## **6.4 Summary of Purpose & Need**

The purpose of the US 231/SR 46/SR 67 corridor study in Spencer is to ensure efficient traffic operations through 2030, provide a safe facility for motorists, and to correct existing roadway geometric deficiencies.

## **7.0 NEXT STEPS**

The next steps in the study process will include the following:

- Development and detailed analysis of a range of preliminary alternatives to meet the needs of the study corridor.
- Conduct a screening of the alternatives in conjunction with the Project Coordination Team and Citizens Advisory Committee (CAC).
- Identify reasonable preliminary alternatives to be retained for further study.
- Conduct detailed analysis of retained alternatives and identify preferred alternative(s).